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SIMULATION OF PLASMA PROCESSING REACTORS*

J. Norman Bardsley, Bernie Penetrante, Peter Vitello and Vahid Vahedi

Physics and Space Technologies Directorate,
Lawrence Livermore National Laboratory

During the last few years the use of low temperature plasmas for materials processing has grown rapidly and there has been considerable research into plasma techniques for the destruction of hazardous molecules in gaseous waste streams. In both contexts simulations have been very valuable in identifying the critical elements in complex physical and chemical phenomena. The removal of NO from vehicle exhausts and coal-burning power plants, and the application of plasma etchers in semiconductor manufacturing, will be used as examples to illustrate the varied nature of scientific issues that can be addressed through simulation. The role of modeling in process analysis, design and control will be assessed, and some of the roadblocks to greater use of these tools will be identified. The need for multidisciplinary teams and increased interactions between universities, industry and national laboratories will be demonstrated.

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